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FUEL LINE

SUMMER 1985

DEFENSE FUEL SUPPLY CENTER CAMERON STATION ALEXANDRIA, VIRGINIA

Students of the 1984 Defense Petroleum Course gather around a computer at the Texas Eastern Corp., Houston, Texas.

In this issue:

- Oil Analysis
- Defense Petroleum Course
- NPR Drilling Project
- Captured Fuel

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DEFENSE FUEL SUPPLY CENTER

SUMMER 1985

FUEL LINE *is an official publication, prepared quarterly by and for the Defense Fuel Supply Center and fuel-oriented clientele.* FUEL LINE *is designed to provide timely, factual information on policies, plans, operations, and technical developments of the center, and interrelated subject matter. Views and opinions expressed in* FUEL LINE *are not necessarily those of the Department of Defense.*

*Submissions and inquiries should be addressed to: Defense Fuel Supply Center, ATTN: DFSC-AP (*FUEL LINE *Editor), Cameron Station, Alexandria, Va., 22304-6160. The commercial telephone is: (202) 274-6489, Autovon 284-6489.*

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Brigadier General John E. Griffith,
U.S. Air Force
Commander
Defense Fuel Supply Center

Colonel Larry E. Bower,
U.S. Air Force
Deputy Commander
Defense Fuel Supply Center

Donald J. Peters
Public Affairs Officer

Linda M. Stacy-Nichols
Editor

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Steps the department will take to improve security include a reduction in the number of clearances and improved classified document control.

Appreciation is belatedly extended to Major Charles Cumberworth, U.S. Army, for Defense Fuel Region Caribbean (DFR-CR) award photographs used in the spring *FUEL LINE*. Major Cumberworth was previously assigned to DFR-CR, and is now the DFSC executive officer.

Other photographs used in the articles were furnished courtesy of DFR-CR.

COMMANDER
DEFENSE FUEL SUPPLY CENTER
CAMERON STATION
ALEXANDRIA, VA 22304-6160

Prior to assuming command of the Defense Fuel Supply Center (DFSC) on 31 May 1985, I had often heard the term "the fuel community." While I appreciated the magnitude of the task of providing fuel support to our Armed Forces deployed around the world, I perhaps had not thought of all of the key players in our "community." In addition to the efforts of DFSC worldwide staff and of the Office of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, and the Military Services, responsive petroleum and transportation industries are required to ensure the provision of the right fuel at the right place and at the right time.

I have met most of the DFSC staff and some of our colleagues in other Department of Defense organizations and industry as well. I am most favorably impressed by the professionalism, dedication and sense of the mission displayed. I know I can count on all of you to continue your best effort as we work together to provide the highest possible quality of product and service to our Armed Forces. Their high calling of providing for the defense of this great country of ours and assistance to our friends and allies around the world demands nothing less.

I look forward to working with you in accomplishing this vital mission.

John E. Griffith
JOHN E. GRIFFITH
Brigadier General, USAF
Commander

After donning hard hats, students are free to survey the drilling rig from top to bottom.

API and DFSC

Partners in Education for the Defense Petroleum Course

by Linda Stacy-Nichols

It's the oil capital of the Western world, home of rigs and riches, ten-gallon hats and dollar-a-gallon gas. It's Houston, Texas, the best place in the United States for the petroleum neophyte to obtain a petroleum industry education. Thanks to a partnership effort by DFSC and the oil industry's professional association, the American Petroleum Institute (API), Houston is living up to its educational promise. The southeastern Texas city and port is the host site each year for the Defense Petroleum Course (DPC).

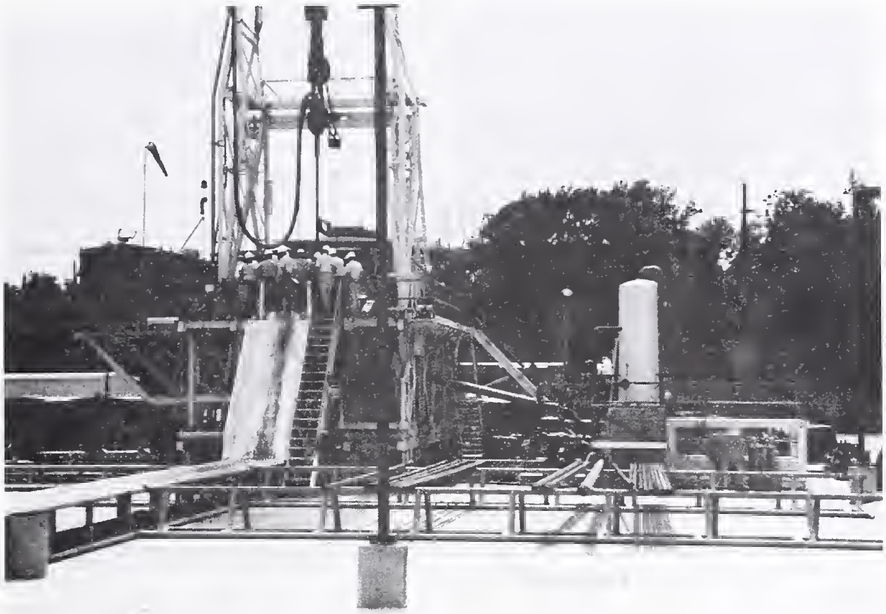
In 1985's record-breaking year for attendance, 72 students from DFSC and other defense and non-defense agencies gathered in June for a week of briefings, lectures, and field trips. While in Houston, students donned hard hats and climbed on a drilling rig, took a bus tour through a petrochemical facility, sailed down the Houston ship channel to see tankers loading, viewed drill bit manufacturing at a tool company, saw the latest developments in drilling technology, and gathered at a pipeline control center to witness operation of the most efficient fuel transportation system available. The students also spent many hours in the classroom listening to industry overviews on oil exploration, refining, petroleum specifications, transportation, marketing, the environment, and research and development.

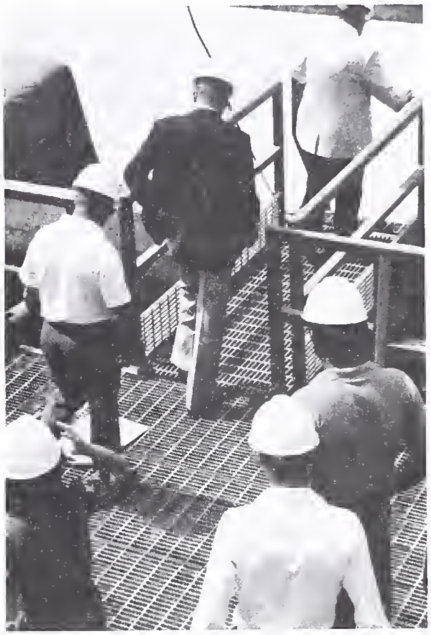
The course provides a solid background for the government employee who deals in any way with petroleum's characteristics and complexities. Unlike many other commonly procured defense commodities, petroleum has unique qualities which affect every aspect of its procurement and distribution to military customers. It is purchased in a world marketplace that has sometimes doled out a meager supply. It has chemical properties that require exacting specifications, judicious transportation and handling, and a limited storage time. Furthermore, the military demand for the product is phenomenal. Daily consumption by all of DFSC's military customers is 488.53 thousand barrels. Put in more down-to-earth perspective, a B-52 jet bomber consumes enough fuel in one hour to keep a family car running for 6 years.

DPC was established to expose Defense Department employees to the oil industry, giving them the basic information they need to do their work as fuels logisticians. Understandably, the course attracts a diversity of people, and it's a challenge to create a curriculum that offers something to every one of 72 students with different occupations and backgrounds.

The secret to the course's effectiveness is close coordination with DFSC and industry, through the intermediary API. The DFSC course coordinator is Rosemary Lutes, a program analyst in the DFSC Office of Planning and Management. She works in cooperation with William Taylor, API's public relations coordinator.

API has not always served as the DFSC bridge with the oil industry.





Some 40 years ago, motivated by the logistical lessons learned in World War II, the fuels community recognized the need for a petroleum course for defense employees. The Humble Oil Company presented the first DPC in 1946 in Houston. Each session spanned 2 weeks; the course was conducted in this format for 8 years.

In the next decade, the course went through several changes. As certain segments of the oil industry prospered in parts of the country other than Texas, the course shifted from Houston to Philadelphia, Pa.; Los Angeles, Calif.; and San Francisco, Calif. Several oil companies took turns managing the sessions: The Texas Company; Sun, Atlantic and Sinclair oil companies; and Standard Oil of California. At one point, the course was sponsored by an oil company triumvirate: Tidewater, Union, and Richfield oil companies.

1964 marked the turning point for the course and its evolution into the modern version. At DFSC's suggestion, API and DFSC worked together to shorten the course by a week. Industry participants at the first "API course," as it came to be known, included Shell, Gulf, Conoco, Pan American, Humble, and Texaco.

Prior to last year, the DPC alternated semiannually between Houston, Texas; New Orleans, La., and San Francisco/Los Angeles, Calif. In 1984, API made the decision to conduct the DPC once a year, in Houston.

Students and course managers alike agree that this location is a cornerstone to the course's success.

According to Mrs. Lutes, "It's a very strenuous week, 8- to 10-hour days with classroom sessions in the mornings and field trips every afternoon. Only in Houston can you really experience what the industry is all about."

To course attendee Howard Phifer, assistant counsel in the DFSC Office of Counsel, the DPC made the product he only had heard about everyday, *tangible*. Mr. Phifer works with DFSC bulk fuel purchases, reviewing contracts and handling disputes.

"I read about fuel everyday," he said, "but you begin to lose touch with what's you're working on. In Houston, I could *see* the product, it's there."

The Texas location also makes sense from industry's perspective. Representatives from Conoco, Exxon, Gulf, Shell, Texas Eastern Corp., Texaco, and Hughes Tool Co. presented overviews at the last session and only two came from states other than Texas in order to attend.

DPC students are also pleased with the course format.

"The conference atmosphere certainly has some benefits," said Air Force Captain Frank Krempa, deputy chief of the Ground Fuels Division in the DFSC Directorate of Contracting and Production. "We covered a lot of different topics, but we still had time to meet a lot of people. I had the opportunity to speak with a fuels officer from Alaska one day and I learned a lot of practical information just from that one conversation."

Bulk Fuels Division contracting officer Jeannie McGuire also felt the course had advantages above and beyond instruction in the classroom.

"I would rate the atmosphere very highly," she said. "It allows you the opportunity to get to know people in a non-confrontational way—the opposite of some meetings that take place at work. You always get around to discussing work, though, and it's good to do that in a relaxed atmosphere for a change."

Although the course was developed specifically for Defense Department students and is geared toward them, a limited number of spaces are made available to other federal agencies. Employees of the Central Intelligence Agency and the Energy Department frequently attend DPC, but several other agencies, including the Office of Management and Budget, have found the course beneficial.

What practical knowledge can students gain from the course?

"In contracting for fuels you are expected to have comprehensive knowledge," remarks Captain Krempa. "You need to know, for example, where the product pipelines go, and what they can do—even if that isn't your major occupation. With an overview such as this, you at least know where to go to get help. You leave the course not as an expert in one field, but with an understanding of where you fit into the big scheme."

William Taylor says this is exactly API's philosophy for the course.

"There are some oil industry topics that always seem to fascinate everyone. There's a certain mystique, for example, behind exploration and production. How do we find the oil? How do we know where to drill? But then there are topics like refining, which delight the chemists in the class, but are more difficult for others to comprehend. What we try to do is give the whole picture to those who have a narrowed focus because of their particular backgrounds. Judging by the liveliness of the question and answer sessions, we really hit home." FL

Whales and Stills and Poplines

by Ralph Lohmann

Petroleum comes from whales. All whales.

Before I went to the Defense Petroleum Course in Houston, Texas, in June, I thought oil came from gas pumps. It doesn't, it comes from whales. "All whales."

Because it comes from all whales, petroleum is sometimes called "all" for short, but this is just a figure of speech. What happens is that all comes from the top of the whale, or the whalehead. The whale apparently is not hurt in the process, because they use strings to recover the all. (This represents a significant advance in petroleum technology from the days of Captain Ahab, an early commander of DFSC. In Ahab's day, they used harpoons.)

In any case, the string is lowered, often from thousands of feet, to the bottom of the whale to recover the all. Sometimes, however, the whale gets away. It is then necessary to retrieve or "re-find" the all. This can get complicated.

In re-finding the all, it must first be put into stills much like those used in moonshining. The stills are fairly primitive, hence the term, "crude still." It also is necessary to crack the whale over the head to prevent his escaping again. This is called "cracking." Whales which then cease trying to escape are termed "reformed."

Sometimes the all is mixed with alcohol to make gasoline. This process is known as "alkylation," and is said to yield a superior product, often as high as 115/145 proof. In "dry" areas, however, the all is mixed with soda pop in an apparatus known as a "popline." All poplines are preferred by prohibitionists.

I'm looking forward to the advanced course. I understand a portion of it deals with sampling procedures, and sampling the gasohol should prove interesting. FL

Ralph Lohmann, assistant counsel in the DFSC Office of Counsel, attended DPC in 1978.

The display room at the Gulf/Chevron drilling technology center includes downhole apparatus and drilling bits.

Can't Make it to Houston?

by Linda Stacy-Nichols

Even if you can't make it to Houston, you can still get a quick education in J. R. Ewing's bread and butter—and you never even have to leave the East Coast.

Ten years ago, the DFSC commander realized the Defense Petroleum Course could not accommodate all of the center's employees. Riding on the coattails of the DPC's success, an on-site version was created: the Defense Fuels Indoctrination Course (DFIC).

Rosemary Lutes, the DFSC coordinator of DPC, has managed DFIC since its inception. Conducted in the spring and fall with approximately 30 students in each session, DFIC parallels the Houston-based course in content, but with much less industry involvement. The DFIC is a week long, with guest lecturers discussing the petroleum industry, exploration and production, refining, quality control, the environment, and the oil market. Unlike the DPC, the course also covers the coal industry.

In addition to briefings provided by DFSC employees, the American Petroleum Institute, National Coal Association, U.S. Army Petroleum Training Center (Fort Lee, Va.), and Departments of the Army, Navy, and Air Force make presentations.

Two field trips highlight the course. One day is devoted to touring the Petroleum Training Center at Fort Lee. The other trip is made to Getty Refinery in Delaware City, Del.

Once a month, the DFSC Office of Public Affairs also conducts a New Employee Orientation Briefing. This 4-hour presentation focuses exclusively on DFSC operations and features briefings by DFSC employees. FL

The DFIC field trip to the Army Quartermaster School, Fort Lee, Va., includes glimpses into petroleum instruction for Army students at the Petroleum Training Center.

Modernizing the Trans-Korea Pipeline

by Major Michael T. Murphy, U.S. Army, and Major Charles A. Golla, U.S. Army

For logisticians, modernization is an essential element of the work-smarter philosophy. With the Army's concerted effort to improve and increase combat-to-support ratios, there must be corresponding logistics improvements to increase efficiency, maintainability, and sustainability, given current manpower ceilings. Few logistics operations typify the ability to do more with less better than an efficiently operated bulk distribution pipeline network. Based on this premise, we have made many changes during the past several years to upgrade the Trans-Korea Pipeline (TKP) and its associated equipment, all the while maintaining continuous service to the pipeline's customers.

The petroleum distribution system in Korea is managed and operated by the 2d Quartermaster (QM) Group (Petroleum), which has headquarters at Camp Henry, Taegu. The 2d QM Group, the only Active Army POL group, is responsible for providing bulk petroleum, oil, and lubricants (POL) to all U.S. forces and selected Republic of Korea forces throughout South Korea. As a subordinate unit of the 19th Support Command, the 2d QM Group's mission includes receiving, storing, and distributing bulk POL products; inspecting procurement; controlling quality; and administering DFSC service contracts. Since the 2d QM Group would be the primary POL operating headquarters on the peninsula in wartime, it also must plan and work closely with various continental United States POL units that would flesh out the group during expanded contingency operations.

The group's operational responsibilities include operating the TKP, a 283-mile-long, high-pressure, buried steel pipeline that runs from the base terminal at Pohang on the southeast coast to the head terminal at Uijongbu north of Seoul. The pipeline is 10 inches in diameter where it begins at the base terminal and is subsequently reduced to take off junctions until it reaches an ending diameter of 6 inches at the head terminal.

Bulk storage terminals and pump stations are located at Pohang, Waegwan, Taejon, Pyongtaek, Kangnam, Toegyewon, and Uijongbu. The current storage capacity for Army TKP terminals is 1.25 million barrels, with increases programmed to expand that capacity over the next 4 years. These terminals form the general support bulk POL link that feeds the inland distribution network, satisfying bulk fuel requirements. Base laboratories within the terminals at Pohang and Pyongtaek conduct surveillance testing for all POL products to maintain quality control throughout the system. In addition, the 2d QM Group operates a newly constructed POL terminal and pump station with a 7-mile, 8-inch, buried pipeline at Kunsan. This facility allows deeper-draft tankers to discharge products at a new jetty.

Under a special lease agreement, pipeline capacity not used during peacetime is leased to a commercial refinery, which uses it to transport fuel; reimbursement for this service is provided at competitive tariff rates. The commercial product is delivered into commercial tanks at Pohang, trucks at Waegwan, and Yukong terminals at Taejon and Kangnam. The intersecting 12-inch Yukong pipeline from the Ulsan Refinery joins the TKP near Taegu. Revenue from this unique arrangement provided the Army with over $6 million in fiscal 1984. Projections are that this peacetime revenue will increase as the remaining modernization efforts reduce maintenance downtime and further improve throughput efficiency.

Built between 1969 and 1971, the TKP became fully operational in 1972. The pipeline has served both the U.S. military and the Korean commercial economy well. Not only does the system provide U.S. Forces, Korea (USFK), with required uninterrupted bulk petroleum support, but it also provides the U.S. Department of Defense with the only comprehensive active training base for integrated pipeline operations.

The 2d QM Group's goal in modernizing the Korean petroleum distribution system is to meet wartime bulk petroleum requirements of USFK. This entails upgrading the system's efficiency and output through state-of-the-art equipment replacements, rebuilding worn-out but proven systems, and combining all of these improvements into an optimum package that is less personnel dependent and more tactically survivable.

A concept plan to meet this goal was initiated in November 1981 and has been given command priority ever since. Many of the specific actions were not new. What was new was the effort to consolidate the seemingly unrelated actions into a total package. This plan identified specific items to be upgraded, programmed the necessary long-term funds, and provided continued focus to the upgrade efforts. This project is essential because TKP assignments are short tours, with a high personnel turnover rate. The focus of the plan ensures that the momentum of ongoing projects won't suffer when responsibility for them is transferred.

The POL modernization program is a dynamic and continuing effort. Much has been accomplished in the last 3 years, as evidenced by greater daily throughput, less downtime, and new areas of emphasis that offer greater potential to further improve bulk POL distribution from port terminal to division area.

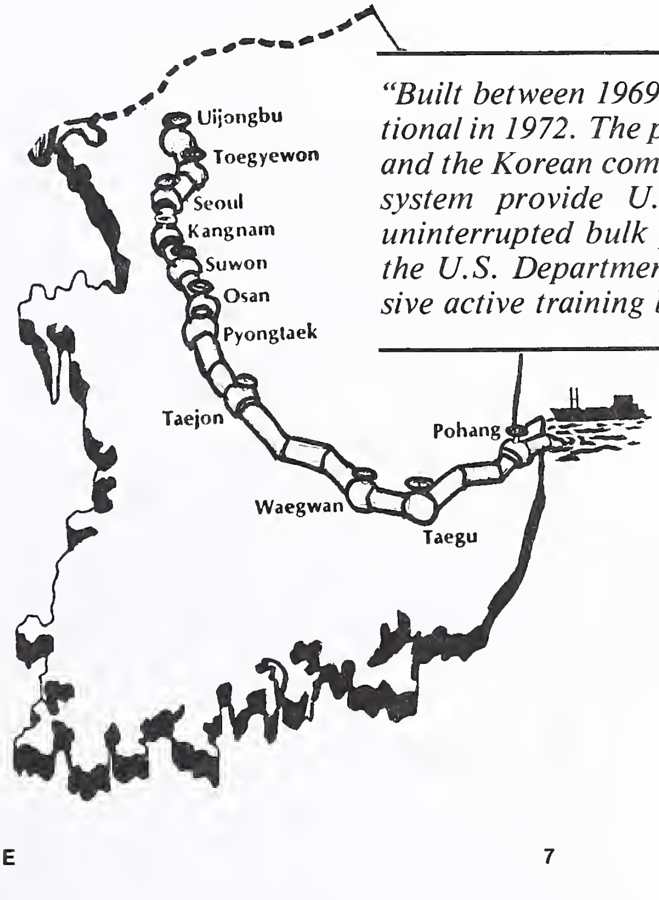
Nor should the strategic importance of an effective bulk fuels pipeline system in a theater of operations be underestimated because its logistics advantages are so numerous. A pipeline network can move the tremendous tonnages of bulk fuels essential for success in the Airland Battle scenario. Pipelines operate 24 hours a day, regardless of weather, and require less personnel and wheel or rail stock to ensure adequate inland petroleum distribution. Pipelines also can greatly reduce congestion of the main supply route by getting large fuel-handling vehicles off the road and thereby allowing quicker delivery of items of other supply classes that can be transported by wheel or rail only. In Korea this is particularly important because of limited supply routes.

The ongoing modernization program for the 2d QM Group consists of the following major areas of emphasis:

- Communications upgrade.
- Turbine engine replacement.
- Mainland pump rebuild.
- Facility construction and hardening.
- Diving detachment upgrade.
- Transfer pump replacement.
- Laboratory upgrade.
- Tanker mooring upgrade.
- Kunsan Terminal project.
- Sustainment capacity.

These aspects of the modernization process are illustrated by the following examples:

"Built between 1969 and 1971, the TKP became fully operational in 1972. The pipeline has served both the U.S. military and the Korean commercial economy well. Not only does the system provide U.S. Forces, Korea, with the required uninterrupted bulk petroleum support, but it also provides the U.S. Department of Defense with the only comprehensive active training base for integrated pipeline operations."



PHASE 1

COMMUNICATIONS UPGRADE

To ensure command and operational control over a high-pressure pipeline system, redundant communications systems are imperative. An ultra-high-frequency voice system has been installed to augment existing military single-side-band and very-high-frequency radio nets. This new system is now the basic means of communicating between the command center and terminals. Off-the-shelf commercial equipment has been used extensively. Teletypewriters have been augmented by a commercial cathode-ray-tube printer and keyboard system to speed processing of daily pumping orders. The original buried pulse-code-modulation cable has also been replaced or upgraded along much of the pipeline to provide increased efficiency to each subordinate terminal.

PHASE 2

TURBINE ENGINE REPLACEMENT

New-generation gas-turbine engines are replacing the ailing and less efficient 15-year-old ground turbine engines. Six of the eight required mainland turbines have been replaced. This has already yielded reductions in required maintenance, better fuel economy, and improved throughput. Funding for turbines seven and eight has already been committed for fiscal 1985, with replacement scheduled by September 30. Three of the four air-start systems have been installed and provide instantaneous power to start the turbine, eliminating the use of hard-to-maintain nickel cadmium batteries.

PHASE 3

MAINLINE PUMP REBUILD

After seal failure and metal wear were detected in the mainline pumps, they were returned to the continental United States for rebuild. The rebuilt mainline pump is matched with the replacement turbine engine to preclude potential alignment problems and returned to Korea for installation as a single unit. The first two pumps were matched and installed by the 2d QM Group. The remaining pumps are being installed by contract. The turbine and pump upgrade is more than 50 percent complete.

PHASE 4

FACILITY CONSTRUCTION AND HARDENING

Long-term goals of the program are to increase total in-country tankage, replace and harden existing aboveground tankage, protect and harden key facilities such as pumping stations and manifolds, provide additional rail tankcar- and truck-loading capability, and expand the pipeline system to other key locations.

PHASE 5

DIVING DETACHMENT UPGRADE

Six additional divers bring the total diver authorization to 13. New equipment, such as recompression chambers obtained from the Navy, also enhances the responsiveness and maintenance capability of the detachment. The divers repair and maintain 4 miles of underwater pipelines and valves and assist in discharging ocean tankers. Currently, the detachment is being converted to Modification Table of Organization and Equipment (MTOE) diving teams to become an integral part of the 2d QM Group MTOE.

PHASE 6

TRANSFER PUMP REPLACEMENT

Eighteen new auxiliary booster and transfer pumps will replace those for which repair parts and major components are difficult to obtain because of obsolescence. Transfer pumps are used for a number of operations in and around the terminals. Specifications for a common pump have been developed, submitted, and funded, with installation programmed for fiscal 1986.

PHASE 7

LABORATORY UPGRADE

New laboratory equipment is replacing outdated testing apparatuses, making the labs at Pohang and Pyongtaek more comprehensive and efficient. Expanded facilities are programmed to accommodate the additional and upgraded test equipment.

PHASE 8

TANKER MOORING UPGRADE

An in-house project to provide additional mooring points at both the deep and shallow oceanline points will be completed in fiscal 1985. Tankers previously dropped anchor and used aft mooring point lines to maintain position during tanker discharge. Recurring sea-line damage required an improvement in this system. With the addition of forward mooring points, tankers no longer need to drop anchor to maintain the proper attitude as they discharge their cargo.

PHASE 9

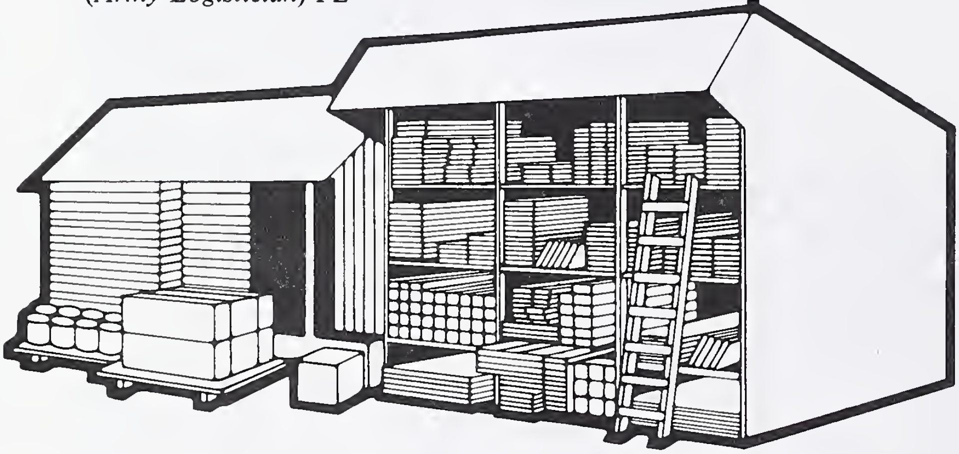
KUNSAN TERMINAL

A major project to upgrade the Kunsan terminal provides a west coast receiving point to support the fuel requirements for Kunsan Air Base. Included are a 30,000-barrel, floating-roof tank; a 3/8-mile-long jetty for ship offloading; and a 7-mile-long, 8-inch-diameter, buried line. Combined, these changes increase terminal tankage, more than double the tanker-size capability, and replace the vulnerable aboveground pipeline.

PHASE 10

SUSTAINMENT CAPABILITY

Warehouses, like the one at Waegwan Terminal, were planned and constructed to store essential equipment and repair stocks. The first of several maintenance facilities was completed in fiscal 1984, with others programmed to be built over the next 2 years. To improve firefighting capability for contingencies, identified as a critical area for upgrade, automatic foam suppression systems will be included in future construction projects. (*Army Logistician*) FL



Major Michael T. Murphy, currently on the water management team in the Office of the Deputy Chief of Staff for Logistics, was the executive officer of the Petroleum Distribution System, Korea, before its conversion to the 2d Quartermaster Group (Petroleum). A 1970 graduate of the U.S. Military Academy, he holds a master's degree in petroleum management from the University of Kansas and is a graduate of the Army Command and General Staff College.

Major Charles A. Golla is the executive officer of the 2d Quartermaster Group. He holds a master's degree in management from Chapman College, Orange, Calif., and is a graduate of the Army Command and General Staff College.

DFSC Contract Awards

The Office of the Assistant Secretary of Defense for Public Affairs recently released the following list of contracts awarded by DFSC with a dollar value over $3 million. This information is not intended to be comprehensive and does not reflect an up-to-date tally of all contracts awarded by DFSC.

Arco Petroleum Products Co., Los Angeles, Calif., has been awarded an $18,496,800 fixed price with economic price adjustment contract for fuel oil. Work will be performed in Long Beach, Calif., and is expected to be completed by October 1985. Contract funds will not expire at the end of the current fiscal year. Sixty-seven bids were solicited and four received. (DLA600-85-D-0510).

Industrial Petroleum Distribution Inc., a small business in Tacoma, Wash., has been awarded a $3,322,008 fixed price with economic price adjustment contract for 5,220,000 gallons of burner oil. Work will be performed in Tacoma. Contract funds will not expire at the end of the fiscal year. Two-hundred fifty-six bids were solicited and 131 received. (DLA600-85-D-0510).

Sinclair Marketing, Salt Lake City, Utah, has been awarded a $4,787,377 modification to a fixed price with economic price adjustment contract for jet fuel. Work will be performed in Sinclair and Casper, Wyo., and is expected to be completed by September 1985. Contract funds will not expire at the end of the current fiscal year. (DLA600-84-D-0611).

Amoco Oil Inc., Oak Brook, Ill., has been awarded a $6,840,372 modification to a fixed price with economic price adjustment contract for jet fuel. Work will be performed in Salt Lake City, Utah, and is expected to be completed by September 1985. Contract funds will not expire at the end of the current fiscal year. Two hundred sixty-nine bids were solicited and three received. (DLA600-84-D-0612).

Phillips Petroleum Co., Bartlesville, Okla., was awarded a $4,014,814 fixed price with economic price adjustment contract for jet fuel. Work will be performed in Woods Cross, Utah, and is expected to be completed by September 1985. Contract funds will not expire at the end of the current fiscal year (DLA600-84-D-0613).

Shell Oil Co., Houston, Texas, was awarded an $8,085,370 fixed price with economic price adjustment contract for jet fuel. Work will be performed in Deer Park, Texas, and is expected to be completed by July 1986. Contract funds will not expire at the end of the current fiscal year. One hundred sixty-nine bids were solicited and 32 received. (DLA600-85-D-0506).

Exxon International Co., Florham Park, N.J., is being awarded an $11,961,304 fixed price with economic price adjustment contract for 13,634,114 gallons (51,609,621 liters) of premium gasoline, diesel fuel, fuel oil no. 2, and kerosene fuel. Work will be performed in the United Kingdom, and is expected to be completed by June 1986. Contract funds will not expire at the end of the current fiscal year. Twenty-one bids were solicited and nine received. (DLA600-85-D-1383).

Hess Oil Virgin Islands Corp., U.S. Virgin Islands, has been awarded a $206,787,505 fixed price with economic price adjustment contract for marine diesel fuel and jet fuel. Work will be performed in the U.S. Virgin Islands, and is expected to be completed by July 1986. Contract funds will not expire at the end of the current fiscal year. One hundred sixty-nine bids were solicited and 32 received. (DLA600-85-D-0511).

Exxon International Co., Florham Park, N.J., has been awarded a $29,370,600 fixed price with economic price adjustment contract for jet fuel. Work will be performed in Augusta, Sicily, Italy, and is expected to be completed by July 1986. Contract funds will not expire at the end of the current fiscal year. One hundred sixty-nine bids were solicited and 32 received. (DLA600-85-D-0514).

Exxon International Co., Florham Park, N.J., has been awarded a $3,749,999 fixed price with economic price adjustment contract for 2,414,636 gallons (637,893 liters) of aviation and diesel fuel. Work will be performed in San Salvador, El Salvador. Contract funds will not expire at the end of the current fiscal year. Four bids were solicited and two received. (DLA600-85-D-0502). **FL**

Virginia Firm Unveils Truck Fueled by Coal

In what Virginia Governor Charles S. Robb called a “breakthrough” for the coal industry, United Coal Co. has unveiled a liquid coal fuel that can power a truck with no modification of the vehicle’s engine.

The company used a 50-50 mixture of liquid coal and diesel fuel to operate a 25-ton coal truck, with the governor at the wheel, in the first public demonstration of the fuel.

United’s head of research and development, Richard Wolfe, said the test proved that “coal can be a viable alternative” to diesel fuel now being used in trucks, locomotives, and large ships.

After piloting the truck a short distance, Governor Robb said he believed the development was a “breakthrough” for the coal industry, and said its future applications are “almost limitless.”

It will take about 2 years for the new fuel to be applied commercially, United officials said, but the Bristol-based coal firm hopes to use it to power its own fleet of coal trucks within a year.

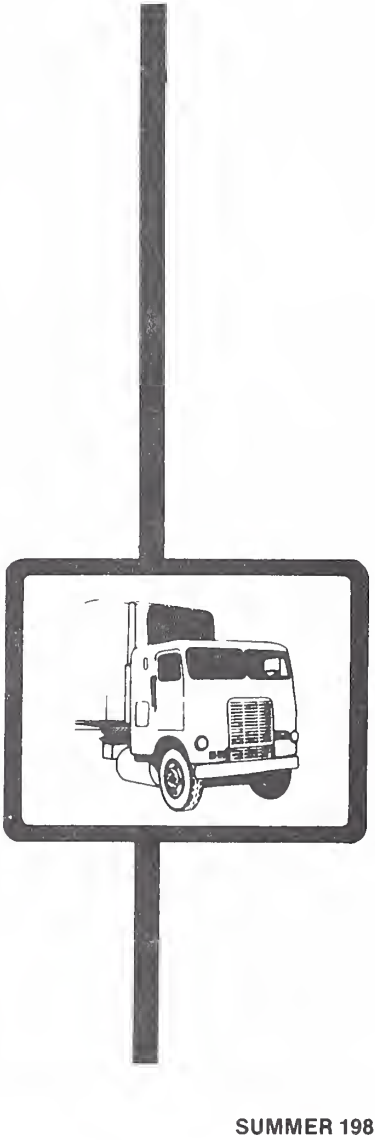
Mr. Wolfe said the final fuel product will probably contain a mixture of 70 percent coal and 30 percent diesel.

“It’s one of the most exciting developments in the coal industry,” said Representative Rick Boucher (D-Va.), who as a member of the House Science and Technology Committee has helped get funding for United’s research.

Representative Boucher said the new fuel would help the crippled coal industry by opening up new markets, thereby creating more jobs. Some southwest Virginia coalfields have unemployment rates of up to 20 percent.

“I think we’re on the verge of changing the coal industry,” Mr. Wolfe said.

Attending the demonstration were representatives of Norfolk Southern and CSX railroads, whose locomotives United hopes to run with the fuel. (*Washington Post*) FL



Captured Fuel—An Added Resource

by Master Sergeant James R. Carstens, U.S. Army

Before the 20th century, the horse was the dominant means of military transportation. Horses were used to carry supplies and ammunition, haul artillery pieces, and evacuate the wounded. They even had a combat role as the "vehicles" for the cavalry. With horses performing so many important functions, finding sufficient forage to feed them was one of the major supply tasks for premechanized armies. Forage was of special concern to armies moving through hostile territory since they could carry only limited quantities of feed and often had to search the countryside for local sources of hay and grass.

Today mechanized combat and support vehicles have replaced horses, and petroleum, oils, and lubricants (POL) have replaced hay and grass. Yet the need of armies for "forage" has not diminished, even if the sought-after commodity has changed. This is particularly true today as the Army begins its new AirLand Battle Doctrine, stressing rapid movement and deep thrusts behind enemy lines. By emphasizing extensive operations in enemy territory, the new doctrine almost ensures that U.S. forces will tend to outrun the conventional petroleum supply system and will have to obtain fuel from local sources. Under this doctrine, commanders will have to be adept at using locally available fuels, whether purchased, captured, or commandeered—much as their forerunners depended on local forage to sustain their horses.

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However, using fuels found in an enemy country is not a simple matter, even if the fuel comes from a captured enemy vehicle. There is no assurance that captured fuel is clear and uncontaminated or that it is the proper kind for use in Army vehicles. Field commanders must be able to quickly determine not only what type of fuel has been obtained but also if it is clean and free of water. Once the type of fuel and its quality have been determined, it must then be transferred to Army vehicles.

Fuel quality and delivery are the traditional responsibility of the Quartermaster Corps. Quartermaster personnel man a series of base, mobile, and airmobile petroleum laboratory units and fuel pumping and storage facilities. These units have the testing and delivery equipment and the qualified personnel who can normally test samples of captured fuel to resupply units in the field within a matter of hours. They may not, however, be fast enough on a modern battlefield, particularly on a deep thrust behind enemy lines.

The solution to the problem of analyzing captured fuel in the field is a portable testing device. This "blackbox" must be able to determine the general type of fuel and if it is clean and free of water. It must be simple and flexible enough so that the average soldier can use it in all kinds of weather, and it must produce reliable results within a few minutes.

Producing an effective testing device rests on the assumption that engines and their fuels—whether motor gasoline, diesel and turbine fuels, or aviation gasolines—are basically the same, regardless of origin. A diesel engine is a diesel engine, whether Soviet, Chinese, or American, and it works on the same principles. This is also true of the turbine used in aircraft and, to a lesser degree, the internal combustion engine. Similarly, fuels are more or less the same basic set of hydrocarbons for each type of engine. Additives that prevent corrosion and the growth of biological organisms, while improving flow and octane, may or may not be present in the fuel of a particular country, but the basic types of fuel are sufficiently universal to be usable by Army vehicles for short periods in emergencies. Therefore, commanders need only to classify a fuel and then determine if it is contaminated by sediment or water before using it.

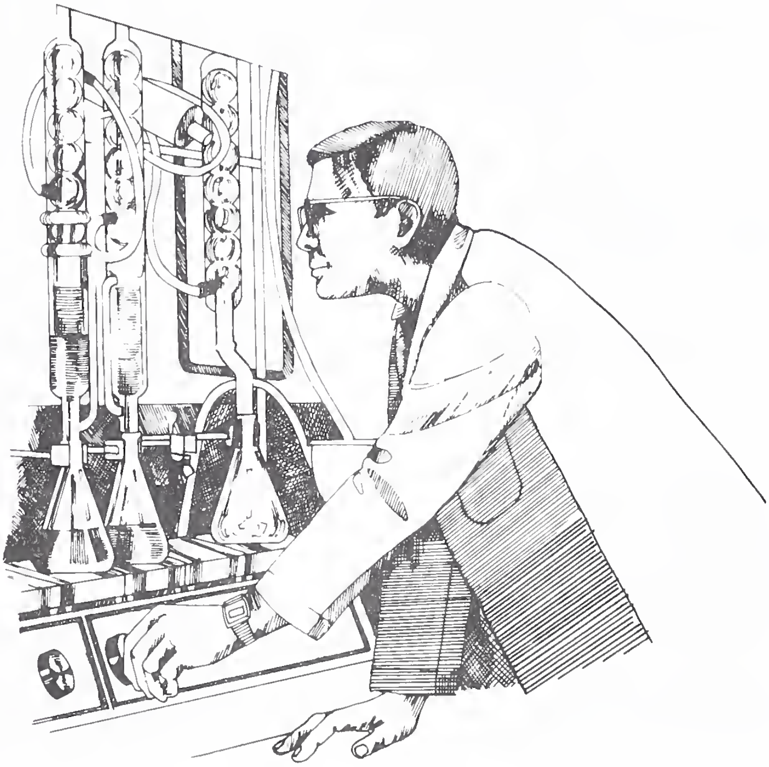
The type of fuel can be determined by analyzing two physical properties characteristic of petroleum products: specific gravity, or unit density, when compared to that of water; and viscosity, or resistance to flow. Both are products of the fuel's molecular composition.

To determine cleanliness and water content, the Army currently fields two separate kits that measure particulate matter in grams-per-liter and water in parts-per-million. However, the cost of the kits precludes them from being distributed to a large number of units. Both kits are also designed for use with standard Army refueling equipment and cannot be used with other vehicles, pipelines, and filter separators unless the latter have been modified.

What the Army needs is a cheap, simplified quality testing device that can be used without modifying refueling equipment. The device needs to be capable of providing quick, reliable determinations of fuel quality. Such a device, designed so that soldiers can use it manually, would consist of back-to-back filters, one for determining water content on a fast, "go/no-go" basis, and the other for measuring fuel cleanliness in comparison to a visual standard. This device should be coupled with the tests for types of fuel to create a small, durable, and cheap equipment package for field use.

Distributing such a fuel testing device to the Army's combat units would help field commanders obtain the information they need in deciding whether to use enemy fuels under emergency conditions. However, such a device is not intended as a substitute for the physical and chemical testing required if prolonged use of enemy fuels is contemplated. Such testing can be done only in a petroleum laboratory because of the size and complexity of the test equipment involved.

Once a suitable fuel analysis device has been developed, the remaining obstacle to emergency use of captured or commandeered fuel is the development of a pumping device that can transfer fuel quickly from a variety of sources. The pump must be light; highly portable; able to transfer fuel at the relatively high rate of 25 to 50 gallons per minute;



"What the Army needs is a cheap, simplified quality testing device that can be used without modifying refueling equipment. The device needs to be capable of providing quick, reliable determinations of fuel quality. Such a device, designed so that soldiers can use it manually, would consist of back-to-back filters, one for determining water content on a fast, "go/no-go" basis, and the other for measuring fuel cleanliness in comparison to a visual standard. This device should be coupled with tests for types of fuel to create a small, durable, and cheap equipment package for field use."

capable of lifting fuel from underground storage areas; inexpensive enough so that an adequate quantity can be provided to field units, along with the fuel identification blackbox; and, above all, reliable.

After rejecting the Army's existing standard pumps as too expensive and too large to handle, the Army Quartermaster School, Fort Lee, Va., located a number of possible candidates available from civilian industry that could easily be modified to fit the Army's needs. From these candidates, a prototype pump with the following capabilities and characteristics was selected: it operates on 24 volts of electricity, using a 15-foot slave cable connection to any standard Army vehicle trailer connection; can pump 25 gallons per minute at 35 feet of head (that is, up to an elevation of 35 feet), or 50 gallons per minute at 18 feet of head; weighs 70 pounds; can be used with 1/2-inch standard camlock fittings and two 15-foot sections of hose; and is self-priming and easy to operate.

The prototype fuel pump was field tested with M1 tanks at Fort Knox, Ky. A decision on whether to acquire the fuel pump for the Army inventory is still pending. Meanwhile, the Army is seeking funds in the fiscal 1986 budget to develop a fuel testing device. Actual development of the device will be a project of the Army Research and Development Center, Fort Belvoir, Va.

Development of the blackbox fuel testing device and the fuel pump will not replace the need for adequate petroleum logistics planning, equipment, and personnel. The new devices will, however, provide the field commander with a greatly improved emergency refueling capability. (*Army Logistician*) FL

Master Sergeant James R. Carstens is the project noncommissioned officer for petroleum laboratory materiel actions, Directorate of Combat Developments, Army Quartermaster School, Fort Lee, Va. He holds a bachelor's degree from Chapman College, Orange, Calif.

Polyurethane Foam Finds a New Use in Drilling

A rigid polyurethane foam, developed at Sandia National Laboratories as a temperature-tolerant packaging for electronics, is being tested as a material to prevent the leakage of drilling muds into high temperature rock formations.

Drilling muds are special fluids that are pumped down a borehole to clean, cool, and lubricate operating drill bits. The boreholes are often riddled with cracks or voids where the muds escape. This condition, called lost circulation, can be particularly acute in geothermal reservoirs where boreholes are in naturally fractured or permeable formations. Lost circulation problems can increase drilling costs by more than 15 percent.

Plugging rock formations during geothermal drilling is particularly difficult because temperatures may exceed 350 degrees F. Many materials used to stop lost circulation in conventional oil and gas drilling disintegrate. The Energy Department's Geothermal Technology Department Program, which Sandia has managed since 1975, is designed to solve this problem.

Second Prototype

Later this year, Sandia scientists will begin testing a second prototype version of a tool which is lowered into the borehole. Separate compartments in the device contain chemicals that, when mixed, generate polyurethane foam that expands through openings in the tool's tip and into the cracks and void spaces.

The aluminum alloy foam emplacement tool to be tested is 30 feet long and 8 inches in diameter and attaches to the end of a drill string with standard threaded couplings.

James Kelsey, supervisor at Sandia's Geothermal Technology Development Division, reports transfer of the technology to the commercial sector occurred while the project was in the conceptual stage. Developmental work on the system was begun in 1980 by Poly Plug Inc. of Bedias, Texas, which is also participating in the upcoming testing along with NL Barnoid/NL Industries of Houston, Texas, and Union Geothermal of Los Angeles, Calif. FL

Research Team Studies Switching Coal for Oil in Diesels

Three research teams, each including a major diesel manufacturer, will check out the feasibility of using coal in diesel engines to provide power to stationary sources and also to run locomotives and small ships.

The 2-year research contracts, awarded by the Energy Department's Morgantown, W.Va., Energy Technology Center, are aimed at reintroducing coal into engines originally intended to burn coal but now fueled solely by oil. The contracts exceed $5 million, including about $725,000 in private sector cost-sharing.

The research focus will be on the medium-speed diesel, the major source of power for domestic locomotive and inland waterway transportation and also used in small utility and industrial applications. These applications consume a total of more than 1.8 million barrels of oil daily.

The research team, including Arthur Little Inc. of Cambridge, Mass.; Cooper-Bessemer Diesel, Grove City, Pa.; and the Massachusetts Institute of Technology at Boston, will study large, coal-fired, stationary industrial cogeneration and also maritime diesel applications under a $1.3 million contract.

The team of the Locomotive Division, Erie, Pa., and the Corporate Research and Development Center, Schenectady, N.Y., both from General Electric Co., will research locomotive applications for coalburning diesels under a $1.7 million contract.

The third team includes the Allison Gas Turbine Division, Indianapolis, Ind., and the Electro-Motive Drive Division in La Grange, Ill., both part of General Motors and the Southwest Research Institute, San Antonio, Texas. It will also study locomotive applications using $1.3 million in federal funds. FL

New Enhanced Oil Recovery Device Designed to Cut Costs, Increase Production

Sandia National Laboratories' scientists report research they conducted for the Energy Department on heavy oil recovery could save millions of dollars in future recovery efforts.

Heavy oil has a molasseslike consistency and enhanced oil recovery efforts required to retrieve it include injecting steam into deeply buried reservoirs. The steam moves through insulated tubing inserted into a cased wellbore to heat the oil so it will flow more easily to recovery wells.

Sandia scientists say, however, that their research between 1981 and 1984 shows most of the heat is lost through uninsulated steel couplings between the tube sections by "wellbore refluxing," a heat and mass transfer process that prevents large amounts of steam from reaching its destination. The heat is conducted away by rocks located along the wellbore above the oil-bearing zone. The loss increases exploration costs because additional steam is needed. It also restricts the depth at which steam is effective.

To stop refluxing, the researchers devised a 2-inch-long, doughnut-shaped piece of plastic insulation (Teflon) to fit around the inside wall of the couplings, sealing in the moving steam and avoiding the vaporizing action upon contact with couplings.

Suppliers Take Note

As a result of the tests, some tubing suppliers have begun to insulate their couplings, reports Dan Aeschliman of Sandia's Geotechnical Engineering Division. The testing occurred in a 122-foot-deep research well near Albuquerque, N.M., and in a western Saskatchewan oil field.

Sandia refluxing studies are part of the Energy Department's Project Deep Steam which has been managed by Sandia Labs since 1979. Besides determining the effectiveness of existing wellbore tubing and influencing the commercial development of more effective types, the project has involved design and long-term testing of a downhole steam generator. This is a long, narrow, high-pressure combustor that can be lowered to the bottom of a well to generate steam and inject it directly into an oil-bearing zone. FL

How Much Oil Analysis is Enough?

by Captain Richard L. Menzel, U.S. Army

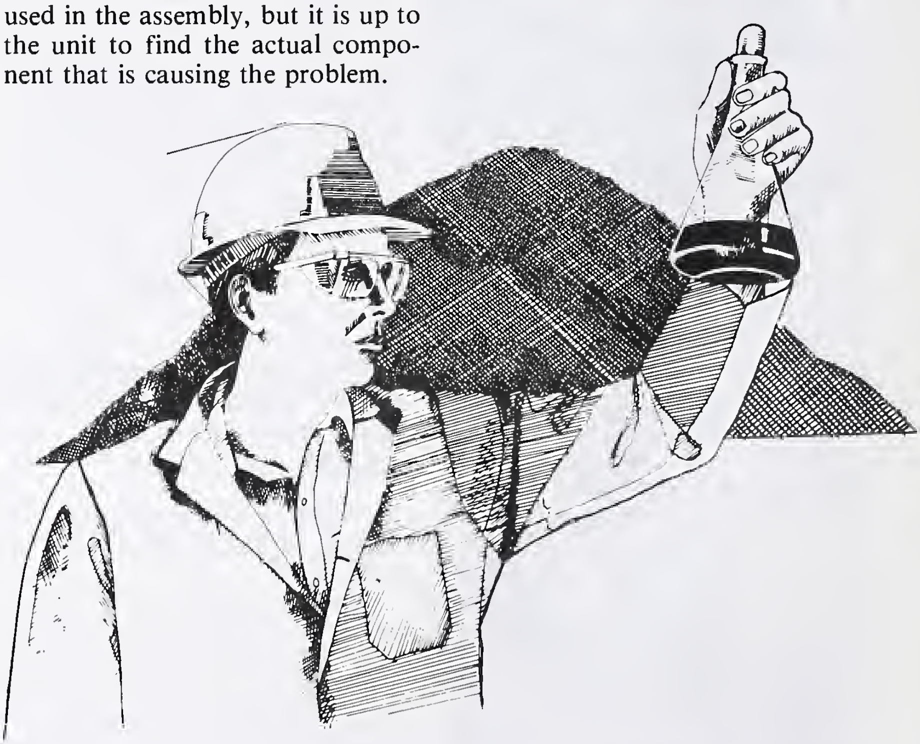
The spectrometric oil analysis program has come a long way since the first Army laboratory was established at Fort Rucker, Ala., in 1961. Now called the Army oil analysis program (AOAP), the name itself indicates the program's expansion over its 20-year existence. Today, spectrometric oil analysis is required not only for all Army aircraft—which was the original concept—but also for an ever-increasing variety of ground equipment.

There have been good reasons for the slow but steady increase in the customers and supporters of oil analysis. In aviation-only applications, it has proved effective in predicting failures of assemblies, possibly allowing maintenance personnel the warning time necessary to effect life-saving repairs. Aviators, who at first scoffed at the program, have become its strongest supporters. Many of them have seen incidents where component failures were detected by an oil sample taken on the ground rather than by a chip detector at 3,000 feet.

In layman's terms, oil analysis is the procedure of analyzing a small quantity of lubricant and measuring increases in the presence of metallic particles. The rate of increase in these particles, called wearmetals, indicates the impending failure of a specific component or system. It is an exacting procedure in which trends are detected by increases of parts per million. Depending on the particular problem, the increase in an oil sample's wearmetal content may be 3-, 10-, or 20-parts-per-million above the levels of "normal samples," and the advent of failure may be between 9 and 90 hours from the time of initial detection.

Analysis of wearmetal trends is a complex process. The oil analysis spectrometer measures the types and amounts of trace metals present in the sample. Depending on the type of spectrometer used, the number of metals for which readings can be made will vary from 12 to 16. In all cases, the technician's job is to detect the increase in the wearmetal readings, which indicates the impending failure of a particular engine or component. The source of the problem cannot, however, be specifically identified by the technician. The laboratory can recommend a corrective action based on a knowledge of the types of metal used in the assembly, but it is up to the unit to find the actual component that is causing the problem.

Mistakes are possible. In one Air Force case, an increase in iron readings from sequential engine oil samples was detected and the unit was notified. It investigated and replaced the gearbox as recommended by the technical order. The unit tested the engine again and was relieved when the oil samples were found to be within normal ranges. Tragically, no one accounted for the fact that the oil had been changed; what was believed to be a normal level of iron particles was, in fact, dangerously high. Still concerned, the unit test-flew the plane and sent off another sample. The unit maintenance officer, using all the data available to him, put the plane back on operational status. Analysis of



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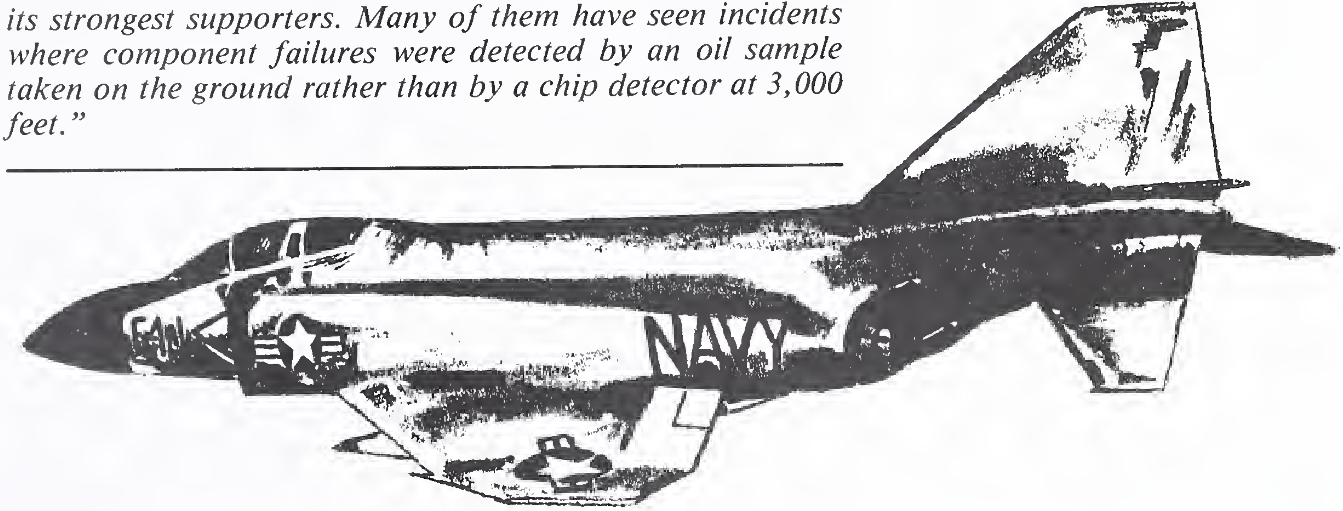

the special sample clearly indicated the trouble had not been corrected, but the results did not arrive at the unit until after the aircraft had crashed. The culprit was a failed accessory drive gear.

A good deal of the problem in this case was that the unit maintenance officer did not have access to the case history of the engine as reported by oil analysis. Improved information processing now helps alleviate this problem. The fact remains that oil analysis is a precision tool and inattention to small details can be disastrous. Meticulousness is essential. All samples sent to a lab must be accurately labeled. If the identifying number of the engine or component is not provided, or if the number is incorrectly transcribed, the laboratory has no way of knowing where the sample came from. Similarly, engine oil samples taken after engine shutdown (when the oil has had time to settle), or taken from the bottom of the oil reservoir rather than the middle, will inaccurately reflect the oil's characteristics. If a unit changes brands of oil or changes the interval between oil samples and does not notify the laboratory of these changes, then all assumptions on a normal oil sample become invalid.

Maintaining historical records is critical to the usefulness of the oil analysis program. If an engine or component has been installed recently, or if the end item is receiving support from a different lab than usual, then the historical records of past oil analyses must be available or the supporting technicians will have no data from which to make an analysis. Recordkeeping on a large scale becomes an indispensable requirement, and automated data processing support is of critical importance.

The difficulties inherent in translating the methodology of oil analysis into the uncertainties of a combat environment are readily apparent. Peacetime experiences clearly indicate that constant management emphasis is necessary if a unit's oil analysis program is to be valid. The unit commander must be actively involved so that all personnel understand the importance of consistent accuracy. The effort to ensure a disciplined approach to the unit's oil analysis procedures must be continual. Mistakes result in invalid samples which, in turn, result in gaps in the record.

The collection and transmission of oil samples is only half the battle. Once the samples are received and the analysis made, the results must be returned to the unit if they are to be useful. Simple mistakes can have tragic results, but if all goes well, the results are dramatic.

In one case history in Germany, a CH-47 was ordered to land in mid-mission on the basis of an oil sample analysis. Maintenance crews worked on the aircraft and found that it would have crashed in less than 6 operating hours had the problem not been found. In yet another case, the forward transmission of a CH-47 failed in flight, the aircraft crashed, and all aboard perished. The real tragedy was that oil analysis had accurately predicted the impending failure. The message containing the vital information, however, was garbled in transmission. The retransmitted information reached the unit the day after the crash.

As these two cases so vividly indicate, the information link is vital to the oil analysis program. Furthermore, both of these cases occurred in the relative stability of a peacetime environment; getting essential information to units in the field will be infinitely more troublesome.

Army aircraft and crews are critical assets that directly relate to the combat power of a force. By indicating impending failures and allowing for timely corrective actions, oil analysis procedures conserve assets and increase combat power. The intensive management required to conduct a viable oil analysis program thus becomes very worthwhile.

The benefits of oil analysis are less tangible for the ground forces, however. The value of oil analysis for ground equipment is often measured in terms of cost avoidance—the amount of money that would have been spent to make repairs had there been no warning of impending failure. Put in these terms, the merits of the AOAP are clearly evident. A good example is when oil analysis detects the impending failure of an M60 tank engine. The unit's maintenance people are alerted, investigate, and make $700 worth of needed repairs. If the value of the tank engine is $14,000, then the value of that one oil sample analysis is $13,300. In fiscal year 1983, cost avoidance was reported at $73.6 million. This figure, of course, says nothing of the savings to the unit in time, manpower, and equipment. Tightening a clamp or replacing a bearing is easier, quicker, and less expensive than replacing an engine.

The logistician who reviews these figures and contemplates the task of supporting a force opposed by a numerically superior opponent finds them valuable indeed. In a resource-constrained environment, every asset is precious. If minor problems can be caught and corrected, then a significant increase in combat power may be realized, and the timely provisioning of combat power is what the science of logistics is all about.

Cost effectiveness and cost avoidance are not combat effectiveness, however. The execution of a viable aviation-oriented oil analysis program has been a major undertaking requiring considerable effort on the part of the "doer" and supervisor alike. Information processing and transmission is a continual requirement and demands an information exchange between the customer and the analyst. With the tremendous increase in volume that a ground-oriented oil analysis program generates, all of these factors become more complex. Most of our experience with oil analysis has been in peacetime. Though oil analysis was used in the Vietnam War, it was a reasonably late development and concentrated entirely on aviation assets. Drawing conclusions from this experience and trying to project applications to an air and ground program in a European or Southwest Asian scenario are difficult tasks.

Advances in oil analysis technology can solve many of the problems. Most oil analyses are now performed at base laboratories located many miles from the supported unit. Improved technology may produce smaller, more compact analysis kits. Though the day of a simple, inexpensive "go/no-go" kit may never arrive, the future holds considerable promise.

There is one other major problem. No matter to what degree the technology of oil analysis is improved, we are still left with a rather limited technique. Oil analysis results will always be a trend indicator of possible failure. Unlike the indispensable AQUA1 Glow Kit, used to detect water in jet fuel, oil analysis findings are not absolute. Maintenance performed on the basis of an oil analysis may not correct the actual problem. If the particular wearmetal indicated by oil analysis is an element of several components in an assembly, fault isolation and correction will be difficult.

These factors contribute to the difficulties of using oil analysis in a ground combat environment. Jet fuel contaminated with water will form ice crystals and cause a helicopter engine to flame out. The chain of events is clear and dramatic. In oil analysis, however, a trend develops in which a potential failure is indicated. The engine may fail in 6 hours to 60 hours, or it may never fail at all if the problem is simply dirty oil or poor sampling procedures. In all cases, the commander knows nothing until the sample is analyzed and interpreted.

A ground combat commander, caught up in the hectic pace of the integrated battlefield, may not find such information useful. He may find that collecting the required oil samples from a widely separated combat force is an unmanageable job, given all the other priority tasks with which he will be confronted. His support elements may have similar difficulties. In a combat environment that stresses battlefield repair, maintenance personnel will be heavily committed. Repair of

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combat-damaged assets will take priority over maintenance tasks indicated by oil analyses. Maintenance personnel will be committed to repairing items that directly influence the course of the battle. The time needed to diagnose oil-analysis-indicated problems in high-density ground equipment will simply not be available.

Oil analysis is a valuable tool, but it must be critically applied. As a technique, it is management-intensive at all levels. To be useful in the combat environments, oil analysis must be applied only to those end items that justify the expenditure in time and effort. Aviation equipment, obviously, justifies this expenditure; high-density ground items do not. To give the ground combat commander a management-intensive technique that does not immediately enhance combat power is to place an unnecessary burden on him and his support elements. (*Army Logistician*) FL

> *"Army aircraft and crews are critical assets that directly relate to the combat power of a force. By indicating impending failures and allowing for timely corrective actions, oil analysis procedures conserve assets and increase combat power. The intensive management required to conduct a viable oil analysis program thus becomes very worthwhile."*

Captain Richard L. Menzel is currently serving with the Minnesota Air National Guard, St. Paul, Minn. He holds a bachelor's and a master's degree from the University of Delaware.

Defense Logistics Agency Objectives

In March 1985, Lieutenant General Donald M. Babers, U.S. Army, Defense Logistics Agency director, approved seven new agency objectives. They are:

- FORCE READINESS - Enhance the sustainability and mobilization capabilities of the armed forces in peace and war.
- MANAGEMENT - Make the best use of human, financial, informational, and material resources. Increase productivity. Improve cost effectiveness. Prevent fraud, waste, and abuse.
- QUALITY - Insist on quality in *all* that we do.
- WORKFORCE EXCELLENCE - Attract, develop, challenge, and retain high quality personnel. Ensure innovation, growth, personal accountability, and equality of opportunity. Improve the quality of worklife.
- AQUISITION - Execute the Defense Acquisition Improvement Program to reduce cost and leadtime, improve spare parts acquisition, ensure contractor performance, increase competition, and promote rebuilding the industrial base, while supporting socio-economic objectives.
- CONTRACT ADMINISTRATION SERVICES Improve contract administration services, ensuring full compliance with contract terms and defense policy, with special emphasis on product quality.
- ENVIRONMENTAL PROTECTIONS - Execute the hazardous materials/waste and environmental protection missions in a timely and cost-effective manner, paying special attention to public concern and in full compliance with environmental laws. FL

Search is on at Naval Petroleum Reserves

New Drilling Project at Elk Hills to Reach 25,000 Feet

Drilling, which could go as deep as 5 miles, is underway at the government's Naval Petroleum Reserves. The search is on for oil and gas beneath the already productive Elk Hills formation near Bakersfield, Calif.

Elk Hills, currently the nation's fourth largest domestic productive field, is estimated to have 760 million barrels of recoverable reserves at depths of 10,000 feet or less. Geologists believe additional quantities of oil and natural gas could be at much greater depths. New discoveries would be significant to the many private production companies operating in nearby fields as well as to the federal government.

Parker Drilling Co., of Tulsa, Okla., which specializes in deep wells, began operations on May 30. The project, costing about $26 million, is expected to take 2 years.

"In many ways, the importance of this well extends beyond just an attempt to find new oil and gas reserves at Elk Hills," says Captain Myron E. Smith Jr., director of the Energy Department's Office of Naval Petroleum and Oil Shale Reserves. "It will serve as a test bed for techniques and equipment that will likely become increasingly important to the future of oil production in California.

"As shallower fields are depleted, companies will begin exploring at greater depths for hydrocarbons. This well could help tell them if deeper oil and gas reserves can be found in the San Joaquin Valley, and if so, what exploration techniques are most suitable for finding them," Captain Smith said.

The deepest well drilled to date in the Elk Hills field reached 18,761 feet. The new project is expected to reach 25,000 feet in the next couple of years. FL

BECHTEL BEGINS NPR OPERATIONS

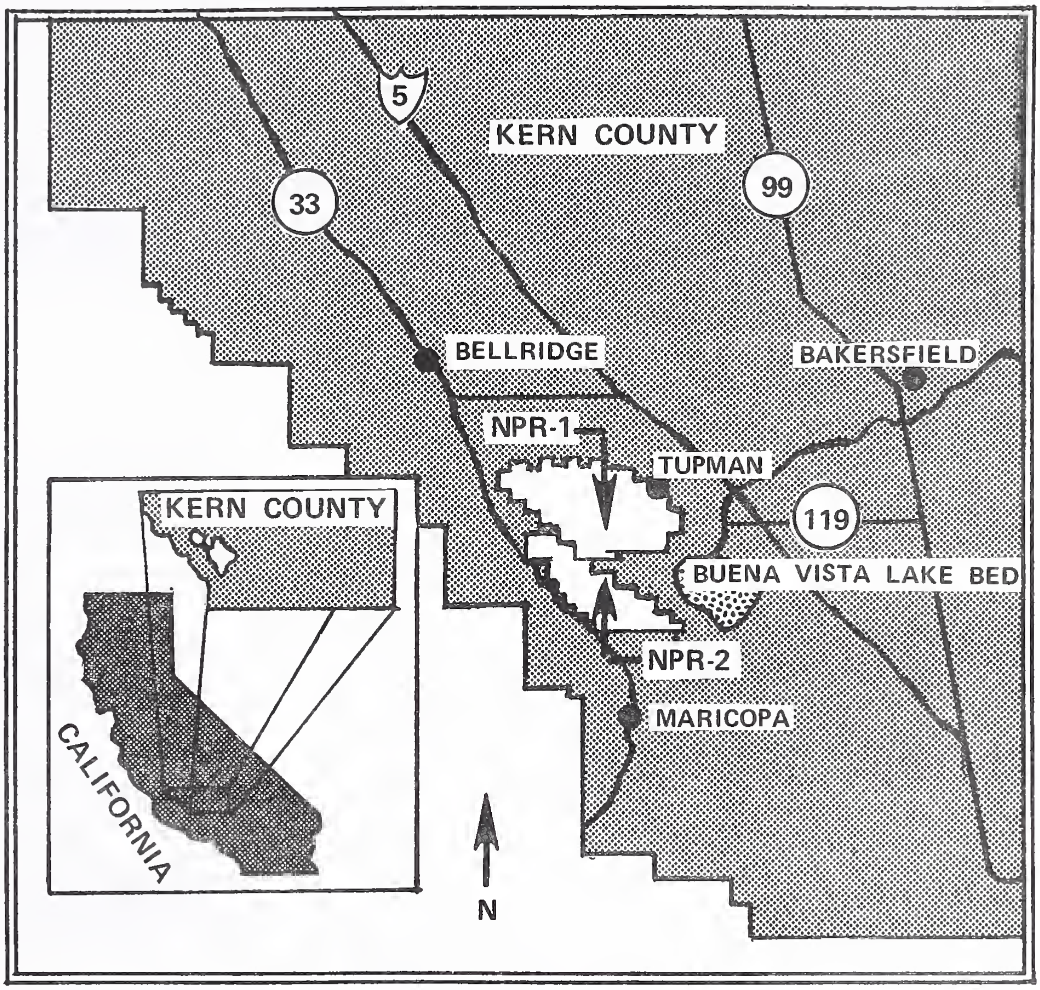
At press time, Bechtel Petroleum Operations Inc., slated to take over operation of the Naval Petroleum Reserves in California from Williams Brothers Engineering Co., was in its 90-day transitional period.

Originally scheduled to assume management from the current contractor on October 1, 1985, Bechtel was expected to take charge on August 1, 1985. Williams Brothers Engineering completed its operations 2 months earlier than planned.

Bechtel was selected in March from among eight competitors to operate the Elk Hills and Buena Vista oil fields near Bakersfield, Calif. The contract spans 5 years and has an estimated value of $900 million. Williams Brothers had operated the Energy Department project since 1975. Bechtel, which is based in San Francisco, Calif., was selected after a 6-month evaluation by an Energy Department board. Under terms of the new contract, Williams Brothers' employees were offered the first opportunity for similar jobs with Bechtel.

The reserves, established in 1912 to provide fuel for the armed forces, continue to supply the Defense Department and also produce crude oil, natural gas, and natural gas liquids for sale on the open market. Elk Hills (Naval Petroleum Reserve No. 1) is operated in conjunction with the Chevron Corp. and is ranked as the nation's second largest producing oil field. In fiscal 1984, the reserves accounted for nearly $1.4 billion in federal revenues. Last September, President Reagan authorized production by the reserves to continue through April 5, 1988. FL

Naval Petroleum Reserves: A Profile



Naval Petroleum Reserve No. 1

LOCATION

Naval Petroleum Reserve No. 1 is located at Elk Hills at the southern end of San Joaquin Valley in Kern County, Calif. The reserve is 35 miles west of Bakersfield and 12 miles east of Taft.

SIZE

The Elk Hills oil field consists of 47,630 acres of highly eroded and sparsely vegetated, hilly terrain, some 14 miles along the east-west axis and 6 miles along a north-south axis.

The hills have a maximum elevation of 1,551 feet above sea level and rise approximately 1,200 feet above the nearly flat surrounding area of the San Joaquin Valley.

GEOLOGY

The Elk Hills geological structure consists of a series of east-west en-echelon anticlinal folds. Production has been established in sediments ranging in age from Pleistocene through Middle Miocene. Sandstone is the rock of the principal reservoirs. The Tulare sands, from the Pleistocene epoch, contain heavy oil. The Mya sand is the principal dry gas reservoir. The shallow oil zone was the first reservoir developed on Reserve No. 1. The Stevens zone contains most of the oil reserves. The Carneros sands are gas condensate reservoirs.

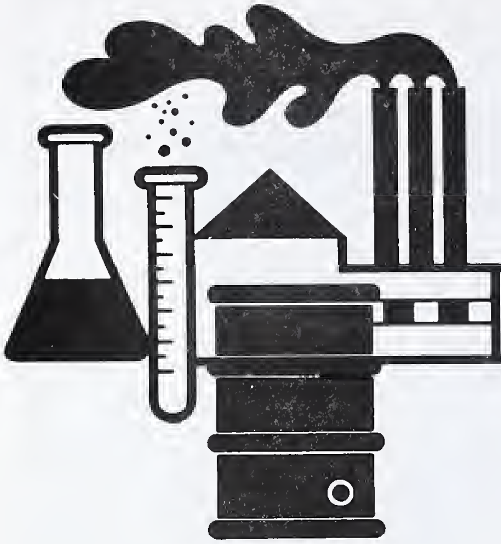
Naval Petroleum Reserve No. 2

LOCATION

Naval Petroleum Reserve No. 2 is located in the Buena Vista Hills, adjacent to Reserve No. 1 in the southern end of the San Joaquin Valley, Kern County, Calif.

SIZE

The reserve consists of 30,181 acres of highly-eroded, hilly, and essentially barren terrain, some 14 miles along an east-west axis and 4 along a north-south axis.



FUEL LINE GLEANINGS

RESEARCH AGREEMENT SIGNED

The state of Oklahoma has signed an agreement with the National Institute for Petroleum and Energy Research (NIPER) at Bartlesville, Okla., for petroleum research in 1986. The $200,000 contract is similar to agreements for 1984 and 1985. NIPER, a not-for-profit laboratory performing petroleum and alternate fuels research, is operated under a cooperative agreement with the Energy Department

F-4 FUEL INDICATORS GO DIGITAL

F-4 aircraft no longer will register inaccurate fuel readings when the Air Force begins replacing the current analog fuel indicators with a digital model.

The Air Force plans to begin installing the digital indicators in all F-4 models—about 1,600 aircraft—sometime next year.

The new system will be more accurate and save money, according to Joe Kirton, who manages the system at Ogden Air Logistics Center, Hill Air Force Base, Utah.

Mr. Kirton said the anti-static fuel additive used in the F-4 interferes with the analog system's ability to accurately measure fuel. The digital system will not be affected by the additive, he said.

The digital indicator will also last about 50 times longer than the current system, saving the Air Force about $15 million during the life of the aircraft.

Mr. Kirton said the analog system must be replaced every 500 hours at a cost of about $500,000 annually.

DFSC SAVES SPR MONEY

DFSC has documented two recent instances where considerable money was saved in the Strategic Petroleum Reserve (SPR) program. These savings are attributable to the center's procurement flexibility and close coordination with the Department of Energy (DOE) and the Military Sealift Command (MSC). In January 1985, DFSC noted that normally more expensive sweet crude was available at lower prices than sour crude. DFSC analyses showed the disparity would continue and the center asked DOE to convert the SPR sour requirement to sweet crude oil. DFSC estimates that this 7-million barrel conversion will save $11 million because of decreased acquisition and transportation costs. Also, on March 29, 1985, DFSC purchased a cargo to fill out a very large crude carrier (VLCC) previously chartered by MSC on a part-cargo basis. The vessel had offered a rate of one-half the previous charter rate for fill out. This resulted in an estimated savings of $990,000.

WORLDWIDE PETROLEUM CONFERENCE SLATED

"The Department of Defense Bulk Petroleum System: Past, Present, and Future" is the theme for the 1985 Worldwide Petroleum Conference. The DFSC-sponsored event is scheduled for this winter at Cameron Station, Alexandria, Va. Conference speakers will address current operational problems and clarify policies and procedures. The conference will also focus on changes, including improvements in inventory management and distribution, increased involvement in overseas support at the base level, and funding for maintenance and repair of military service facilities.

The first day of the conference will consist of briefings and the second will be allocated to workshops. Each workshop will include seven to nine participants and will be headed by a level six (O-six) officer or civilian equivalent. A summary report will also be prepared and an outbriefing conducted.

More information will be forthcoming.

REGULAR GAS TO CONTAIN LESS LEAD

Drivers who use regular gasoline in their automobiles will pay more money for less lead beginning July 1, 1985.

According to a new federal standard set by the Environmental Protection Agency, the amount of lead in regular gasoline will be reduced from 1.1 grams per gallon to .5 grams per gallon.

The new standard is aimed at reducing air pollution from leaded gasoline and calls for further lead reductions to .1 grams per gallon by January 1, 1986.

DFSC REPRESENTATIVES ATTEND EUROPOL CONFERENCE

Army Colonel Robert McGough, director of DFSC's Directorate of Supply Operations, and Navy Commander L.A. Van Rooy, chief of the Inventory Management Division, participated in the 36th European Command Petroleum Logistics Conference held in Amsterdam, Netherlands, from April 16-18, 1985. Colonel McGough discussed the new DFSC stock rotation policy and Commander Van Rooy addressed the slating process and the importance of the Weekly Bulk Petroleum Message Report. Before the conference, they visited the 200th Theater Materiel Management Command to discuss supply requirements and resupply schedules for the Central European Pipeline System. They also visited the 3rd U.S. Air Force and the commander in chief, U.S. Navy, Europe, in the United Kingdom to discuss stock rotation, inventory management, and transaction reporting.

DFSC BRIEFS ON RECENT TRAFFIC AUTOMATION

On April 30, 1985, representatives from the DFSC Directorate of Supply Operations briefed the Transportation Systems Forum on recent automation efforts for traffic management and transportation data. These data are used to procure and distribute bulk petroleum products. The DFSC briefing material will support development of automated systems which will reduce paperwork and improve Defense Department management information programs. The forum is comprised of senior traffic managers from the military services, the Military Traffic Management Command, and the Defense Logistics Agency.

FINAL PLANS MADE FOR NORFOLK PIPELINE SERVICE

On May 23, 1985, representatives from DFSC, the Navy, the Army, the Corps of Engineers, and the Colonial Pipeline Co. met at Defense Fuel Support Point Norfolk, Va., to finalize plans for pipeline service to the support point. Norfolk area fuel requirements are currently delivered via tanker and barge from refineries located in the U.S. Gulf Coast. Under the proposal, fuel for Norfolk customers will be moved through a network of existing product pipelines. The service is slated to begin by the end of 1985 and will improve military readiness in the Norfolk area.

DFSC SUPPORTS SPACE SHUTTLE PROGRAM

Detachment 29, San Antonio Air Logistics Command, recently asked DFSC to provide commercial jet fuel (COMJET A) for the space shuttle program at Bergstrom Air Force Base, Texas. The fuel was first placed into U.S. Air Force refuelers by arrangement with the established into-plane refueling contractor at Robert Mueller Municipal Airport, Austin, Texas. A total of 25,000 gallons of COMJET A were provided at the end of June; an additional 25,000 gallons were delivered in the middle of July 1985.

CENTER DISCUSSES HIGHWAY ACCESS RIGHTS

The Defense Department has been trying to obtain priority highway access rights to distribute petroleum during national, defense-related emergencies. On May 24, 1985, representatives of DFSC, the Defense Logistics Agency, the Department of Transportation, and the Military Traffic Management Command discussed establishing a road use permit that would be issued to designated motor carriers. The permit would be displayed on the vehicles to ensure uninterrupted movement by commercial carriers transporting defense-essential petroleum products.

SPR FUNCTIONS TO BE CONSOLIDATED

Management functions of the Strategic Petroleum Reserve have been consolidated under one contractor, Boeing Petroleum Services Inc. Certain functions may be performed under subcontractors to Boeing.

Boeing recently signed a 5-year contract with the Energy Department replacing a phase-in contract in effect since February 1, 1985. The first 6 months will be on a cost-plus-fixed-fee basis with the remainder of the contract on a cost-plus-award-fee system.

The Energy Department has the option to extend the contract for up to an additional 5 years. Oak Ridge Operations is the contract administrator.

NEW MEMORANDUM OF UNDERSTANDING FOR DFSC/MSC

The commanders of DFSC and the Military Sealift Command (MSC) recently signed an updated Memorandum of Understanding between the two agencies. This document defines joint operating procedures for timely and efficient bulk petroleum ocean transportation. Changes incorporated in the new agreement were recommended by a joint DFSC-MSC task group which reviewed Defense Department tanker distribution procedures for petroleum.

DFAMS TRAINING WORKSHOP

From July 9-11, 1985, DFSC hosted a 3-day Defense Fuel Automated Management System (DFAMS) training workshop. Representatives from the Defense Fuel Regions and designated intermediate control points throughout the world attended the session, which is the first step toward an effective and continuing DFAMS training program. This workshop evolved from DFSC's initial distribution of DFAMS training materials to all major DFAMS reporting facilities.

DFSC MARKS FINAL PHASE OF REORGANIZATION

DFSC marked the final phase of the Defense Logistics Agency's standard organization for contracting and production at the end of June 1985. Among other changes, the Management Support Office (DFSC-PC) was disestablished and redesignated as the Policy and Systems Office (DFSC-PCA). The responsibility for procurement plans and programs shifted from the Systems Branch to the Policy Office.

A new organization, the Competition and Pricing office (DFSC-PF) will handle all the responsibilities previously assigned to DFSC-PCB. The Operations Support Office (DFSC-PO) will retain its current missions and functions (except for contract data control) and will contain an expanded Administrative Services Branch. Contract data control will be transferred to DFSC-PCA.

Although some personnel reassignment will be necessary, it will be kept to a minimum and no adverse actions will result. Personnel assigned to functional areas will continue in their current positions.

COAL AWARD MADE FOR STRATEGIC STOCKPILE

On June 25, 1985, DFSC awarded a contract to Anker Kolen Maatchappij, Rotterdam, Netherlands, to provide coal for the U.S. Army Europe (USAREUR) Strategic Stockpile. The contract, which covers 76,000 metric tons of anthracite coal and 54,000 metric tons of bituminous coal, is valued at $11,303,930. The coal will be stockpiled in Germany during the delivery period of August 1, 1985, through November 30, 1985. Congress approved the USAREUR coal Strategic Stockpile under the fiscal 1986 appropriation bill.

UNREFUELED FLIGHT RECORD BROKEN

An Air Force aerial tanker has bettered the KC-10 non-stop, unrefueled flight record by nearly 1,000 miles. The three-engined tanker flew from Riyadh, Saudi Arabia, to Southern California in February, covering the 8,970 miles in 17 hours and 48 minutes. The plane's route passed over Egypt, the Greek islands, France, Ireland, eastern Canada, and Minnesota. The previous KC-10 record was set between New Zealand and Barksdale Air Force Base La., a distance of 8,050 miles.

ADDITIONAL SERVICES PROVIDED FOR ROBINS AND MOODY AIR FORCE BASES

DFSC has made arrangements with Standard Transpipe Corp. to provide additional tankage and truck loading services at the corporation's Macon, Ga., terminal. The added services will support pipeline deliveries to Robins and Moody Air Force Bases. The corporation will furnish one 50,000-barrel tank and one 30,000-barrel tank for receiving, shipping, and quality control management of DFSC products. The new services will save the government approximately $32,000 annually.

DFSP ALAMOGORDO TO RECEIVE UPGRADES

In response to a Defense Fuel Region Southwest recommendation, DFSC awarded a contract in February to upgrade Defense Fuel Support Point (DFSP) Alamogordo, N.M. The improvements, which included a 70,000-barrel-increase in tankage and a new truckloading facility, were completed on June 17, 1985. The DFSP can now provide improved emergency and peacetime support to military activities in New Mexico, west Texas, and Arizona.

A/E/M BULK FUEL AWARDS PENDING

Near the end of June 1985, DFSC was making contract awards against the Atlantic/European/Mediterranean bulk fuel requirements for July 1, 1985, through June 30, 1986. Twelve contracts with a total value of $800 million were to be awarded for 23,854,023 barrels of jet fuel, distillates, and motor gasoline. The fuel will be delivered primarily from contractors' refineries using pipelines or U.S. flag vessels to various locations in the Atlantic/European/Mediterranean areas.

DFSC PLANS INCREASED SUPPORT TO DYESS AIR FORCE BASE

In June, DFSC representatives visited Dyess Air Force Base, Texas, to plan improved support for increased jet fuel requirements. Logistical plans call for an increase in the flow rate through the base's pipeline. This increased delivery rate will accommodate 1986 fuel requirements and will reduce the base's manhours for receiving deliveries. The new procedure is expected to begin in November 1985.

BUNKER FUELS CONFERENCE HELD

On 7 June 1985, the DFSC Office of Market Research and Analysis sponsored a conference on the bunker fuels industry. Representatives of the Bunker Fuels Corp. gave a presentation on buying bunker fuels and an overview of major industry changes. A total of 26 people attended, including representatives of DFSC, the Navy Petroleum Office, and the Military Sealift Command.

ONE QUAD = 11 DAYS

One quad (one quadrillion British thermal units) equals about 45 million short tons of coal, 170 million barrels of crude oil, an 11-day supply of petroleum in the United States, and a 29-day supply of gasoline based on the 1983 rate of consumption for U.S. motorists.

MEXICO TOPS SUPPLIER LIST

Mexico is now the largest foreign oil supplier to the United States, providing 14 percent of total imports. Canada and the United Kingdom are also ranked highly, providing 12 percent and 7 percent respectively. Arab countries currently provide 15 percent of total U.S. imports.

DFSC HOLDS PRE-BID CONFERENCES IN ALASKA

During the first week of June, DFSC representatives conducted pre-bid conferences at Fairbanks, Anchorage, and Juneau, Alaska. The meetings focused on expanding contract coverage and competition for ground fuels in Alaska. The conferences were well-attended by current and prospective contractors and DFSC customers.

DFSC MAKES HIGH DENSITY JET FUEL AWARD

DFSC recently awarded a cost plus fixed fee research and development contract to Sun Refining and Marketing Co. for 62 drums of high density jet fuel. The U.S. Air Force will assess the fuel's potential use in current and future aircraft.

Would you mind calling this a plumbing problem instead of leak in security?

DFSC/USAREUR REPRESENTATIVES MEET

Representatives of DFSC and the U.S. Army, Europe, met at the U.S. Army General Materiel and Petroleum Activity at the end of May 1985. The group discussed Army fuel requirements in Europe, including usage and consumption rates.

Personnel Notes

MR. BIDDLE EARNS DEFENSE MANAGEMENT AWARD

On May 21, 1985, Acting Undersecretary of Defense James P. Wade Jr. presented the Secretary of Defense Superior Management Award to Edward J. Biddle. Mr. Biddle is the deputy director of DFSC's Directorate of Contracting and Production.

As the senior civilian supervising DFSC's acquisition program, Mr. Biddle is responsible for a staff of 235 and an annual budget of $9.5 billion, the largest single procurement program within the Department of Defense (DOD).

The award citation lauded Mr. Biddle's knowledge of the energy and contract management fields. He is also credited with improving the DOD fuels acquisition process, thereby making the defense marketplace more attractive to industry and improving support to DFSC customers.

The award nomination detailed Mr. Biddle's efforts from October 1983 until the award date:

As a spokesman for the DOD fuels community at a North Atlantic Treaty Organization (NATO) conference, he discussed petroleum contingency planning with NATO members, resulting in their review of petroleum support available to the United States. In a similar arena, he helped draft proposed legislation granting DOD more flexibility for fuel acquisitions during energy emergencies.

Mr. Biddle proved equally as skilled in dealing with actual military exercises and operations worldwide. During the award period, several activities around the world demanded his attention. In Honduras, a $15.7 million fuels support contract was established in a week's time; this effort was subsequently lauded by the U.S. Army. Under Mr. Biddle's supervision, DFSC arranged a $1.6 million fuels contract to support U.S. armed forces in Grenada. This contract was also awarded within a week.

In line with the Defense Logistics Agency's standard organization, Mr. Biddle developed a new structure for the directorate, one which accommodated additional contracting functions and a 20 percent increase in personnel strength. He personally involved himself in each facet of obtaining new employees, from position description preparation and classification to recruitment. In keeping with the principles of the Defense Acquisition Improvement Program, Mr. Biddle instituted a massive training program for all employees within the directorate.

He is also credited with drafting a new agreement between DFSC and the Small Business Administration which establishes a $170 million reservation program for small and disadvantaged businesses.

A federal employee for more than 2 decades, Mr. Biddle began working for the agency in 1963. He has served with DFSC since 1969, except for a year's assignment with the Secretary of Defense's Energy Policy Office.

DR. WADE CHOSEN FOR NEW DOD POST

Secretary of Defense Caspar W. Weinberger announced on July 5, 1985, that Dr. James P. Wade Jr. is the new assistant secretary of defense for acquisition and logistics.

Dr. Wade was formerly the assistant secretary of defense for development and support, as well as the principal deputy undersecretary of defense for research and engineering. Previously, he was assistant to the secretary for atomic energy from 1978-1981. From 1974-1977, he was deputy assistant secretary of defense for policy plans and National Security Council affairs. He was also director of the Defense Department's Strategic Arms Limitation Talks (SALT) task force. Dr. Wade holds the Defense Department's Distinguished Civilian Service Medal, and the Department of Defense Medal for Distinguished Public Service with Bronze Palm.

MR. ZELL RECEIVES COMMENDABLE SERVICE CERTIFICATE

Ira Zell, a computer systems programmer in the DFSC Office of Telecommunications and Information Systems, recently received a Commendable Service Certificate for his work during 1984.

Mr. Zell has been the office's systems data base manager for the past 8 years, overseeing the model 204 data base management system to support the Defense Fuel Automated Management System (DFAMS). This data base contains the information necessary to manage the multimillion dollar defense fuels program efficiently.

The DFAMS workload has quadrupled in the past 5 years, with a hefty increase in the past year: new files were added, security was revamped, and automation was developed to document data elements, files, and systems.

DFSC CHIEF GARNERS SPECIAL ACHIEVEMENT AWARD

Dan Calhoun, chief of the Bulk Fuels Division of the DFSC Directorate of Contracting and Production, received a Special Achievement Award for his recent efforts as a liaison to the People's Republic of China. Mr. Calhoun accompanied former DFSC Commander Rear Admiral William J. Ryan, Supply Corps, U.S. Navy, on their 11-day trip, which began at the end of February 1985.

Mr. Calhoun is credited with establishing "immeasurable positive relations, good will, and technical contacts with the [People's Republic of China] petroleum hierarchy."

He prepared for the journey by compiling a comprehensive information packet for the Chinese petroleum representatives. While in China, he visited Beijing and a refinery where he explained the U.S. government fuel acquisition process, including payments, pricing, demurrage, award patterns, the bid evaluation model, and quality assurance. Mr. Calhoun's Special Achievement Award attributes to him a unique ability to communicate technical aspects of fuel acquisition.

The award also cites Mr. Calhoun for resolving contractual problems with contractors on the U.S. West Coast and in Hawaii. These meetings were conducted en route to China and coincided with regular commercial transportation layovers.

EXTRA EFFORTS LEAD TO CRUCIAL CONTRACT AWARD

For a few weeks in June, the arctic ice melts and fuel and other supplies can be delivered to isolated Alaskan sites. Requirement submissions to DFSC, however, omitted three Bureau of Indian Affairs sites and left these areas without fuel for the 1985 shipping season. Delivery sites at Ambler, Noatak, and Shungnak, Alaska, required arctic diesel fuel to continue operations.

Thanks to the efforts of four employees in the Ground Fuels Division of the DFSC Directorate of Contracting and Production, a contract to supply the fuel was awarded well in advance of the June 1, 1985, deadline.

David Wilson, Betty Heitmeyer, Thelma Ledbetter, and Samuel Clark each received a letter of commendation for their work from Army Colonel Robert McGough, chief of the Supply Operations Directorate. The letter cited each for a "conscientious attitude, sense of urgency, and procurement expertise."

SEVEN RECEIVE LETTERS FOR OVERSEAS BUNKER PROGRAM WORK

Marie Pagan, a contracting officer assigned to the Bunkers Branch, Specialty Fuels Division, of the DFSC Directorate of Contracting and Production, recently sent letters of appreciation to seven employees involved in the overseas bunker program.

Joan Margolis, Darline McCartney, Sharon Rowland, Blenda Younger, Diane Sinagra, and Sharon Ford, all of the Specialty Fuels Division, and Robert Little, of the Bulk Fuels Division, were recognized for devoting "many hours of personal time working overtime [on an assignment] which was in addition to the normal workload."

MS. SEWELL RECEIVES SUGGESTION AWARD

DFSC employee Lynne Sewell recently received $50 for her idea to use consistent units of issue for drummed petroleum products. These fuels are used by DFSC posts, camps, and stations customers who order them on the basis of drum units. DFSC solicitation schedules, however, reflected both drum units and gallons and contractors bid in gallons. At Ms. Sewell's suggestion, DFSC solicitations and awards were changed to read drums as the units of issue, rather than gallons. There is now consistency in contracting, ordering, and accounting, which has led to corrected reimbursement of the Defense Stock Fund. Ms. Sewell is an accounting technician in the Accounting and Finance Division of the Comptroller's Office.

HTCS HULL RECEIVES NAVY COMMENDATION MEDAL

Senior Chief Hull Technician (HTCS) William Joe Long, who is now serving with Defense Fuel Region West as a petroleum specialist, recently received the Navy Commendation Medal (with Gold Star in lieu of the third award) for meritorious achievement in his previous assignment. He served as leading chief petty officer of the Shopfitter Shop and Repair Division on the *USS New Jersey* from September 1983 to April 1984 while the ship was deployed in the Mediterranean. The award cited HTCS Long for expertise, leadership, and resourcefulness during a time of critical shortages of supplies and limited outside industrial support. These qualities enabled him to complete both emergency and routine repairs in a timely, professional manner.

Crimes Involved in Contract Fraud

When the government and its programs have been defrauded or corrupted, federal investigators and prosecutors will usually find that one or more federal statutes have been violated. It is their job to develop conclusive evidence that each of the elements of a specific crime exists. The most frequently violated statutes include:

A. *18 USC 1001—False Statements.* Any one of three different types of acts can be covered under this statute if under the jurisdiction of any agency:

1. Falsifying, concealing, or covering up a material fact by any trick, scheme, or device.
2. Making false, fictitious, or fraudulent statements or representations.
3. Making or using any false document or writing.

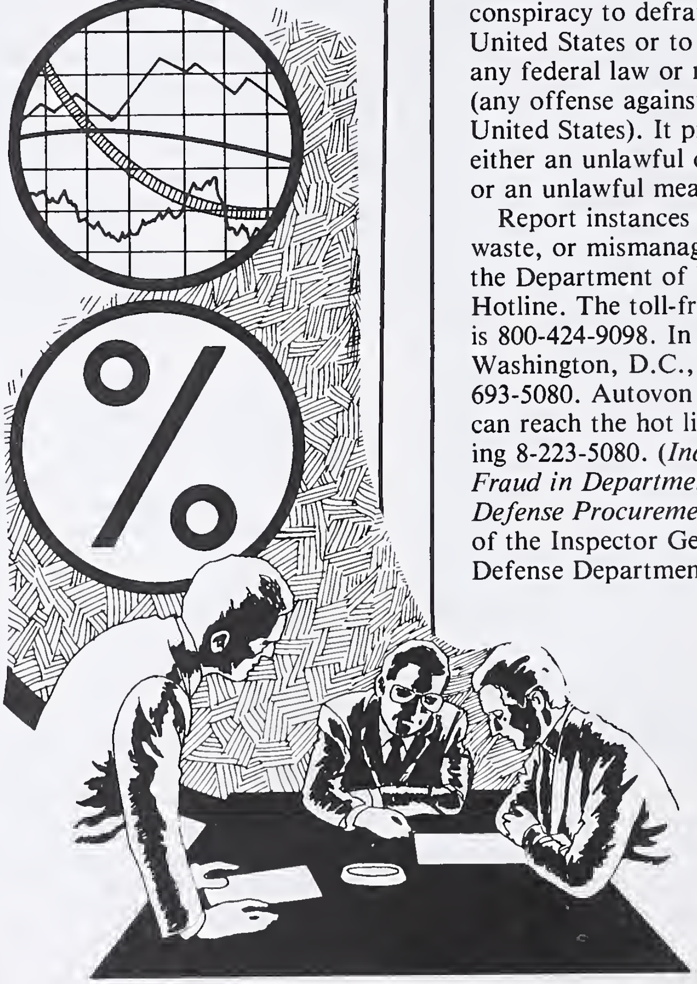
B. *18 USC 287—False Claims.* This includes making any false, fictitious, or fraudulent claim against any agency of the United States. (In a related civil statute, 31 USC 3729, the United States can also recover double damages and $2,000 per false claim.)

C. *18 USC 1341—Mail Fraud and 18 USC 1343—Wire Fraud.* These statutes make it illegal to engage in any scheme to defraud in which the mails or wire communications are utilized. (Even the *government's* mailing of a payment check to a contractor can bring the scheme under this statute.)

D. *18 USC 201-209—Bribery, Gratuities, and Conflicts of Interest.* These sections prohibit anyone from offering or giving a bribe to a federal employee or agent and prohibit an employee from receiving either a bribe or gratuity. They also prohibit conflicts of interest during and after federal employment. (New authority delegated by the president in November 1983, under 18 USC 218, permits agencies to rescind any contract tainted by bribery, graft, or conflict of interest after conviction.)

E. *18 USC 1905—Trade Secrets Act.* This prohibits unauthorized release of any information a federal employee receives confidentially in the course of employment (advance procurement information, prices, technical proposals, trade secrets, or proprietary information, etc.).

F. *18 USC 641—Theft, Embezzlement, or Destruction of Public Money, Property, or Records.* This prohibits the theft, embezzlement, or destruction of any money, property, or records of the United States or the receiving or concealing of such.



G. *41 USC 51, 54—Anti-Kickback Act.* This prohibits the payment of any fee, compensation, gift, or gratuity from a subcontractor to a prime contractor on any negotiated government contract.

H. *15 USC 1—Sherman Antitrust Act.* This prohibits any agreement to restrain trade in interstate commerce and includes price fixing, bid rigging, or bid rotation schemes.

I. *18 USC 371—Conspiracy.* This section prohibits any conspiracy to defraud the United States or to violate any federal law or regulation (any offense against the United States). It prohibits either an unlawful objective or an unlawful means.

Report instances of fraud, waste, or mismanagement to the Department of Defense Hotline. The toll-free number is 800-424-9098. In the Washington, D.C., area, call 693-5080. Autovon customers can reach the hot line by calling 8-223-5080. (*Indicators of Fraud in Department of Defense Procurement,* Office of the Inspector General, Defense Department). FL

Defense Department Tightens Security

Revelation of an alleged espionage ring in the Navy stunned the nation, particularly members of the defense community. That individuals who had been entrusted with the Defense Department's most sensitive military secrets could have "sold out" to the Soviet Union stirred anger—and frustration about how to prevent the leak of classified information.

In an effort to improve the security of classified material, Secretary of Defense Caspar W. Weinberger has announced a plan to limit access to classified information, increase monitoring of individuals with such access, and ensure that they handle classified information properly.

Among the measures being implemented are:

- A 10 percent reduction in the number of Defense Department clearances by October 1, 1985, and in the number of requests for background investigations in the following year. About 4.3 million military, civilian, and contractor personnel currently hold Department of Defense (DOD) security clearances.
- Better controls over individuals with access to classified information. Commanders and supervisors will be held responsible for monitoring what information their personnel have access to, and determining through an annual review who needs continued access to that information.
- Improved classified document control. This measure calls for an improved analysis of what, if any, security classification a specific document requires, and how particularly sensitive documents are disseminated. The goal is a substantial reduction in the number of top secret and secret documents, and in the scope of their dissemination.
- Creation of a commission to evaluate DOD security policies and procedures. This commission, chaired by retired Army General Richard G. Stilwell, will identify weaknesses in the current security system and make recommendations to correct these deficiencies.
- Continuation of the DOD polygraph test program provided for under the fiscal 1985 Defense Authorization Act. The program involves the use of polygraphs when granting access to especially sensitive classified information. Once the test is completed, DOD and Congress will assess whether the program should be continued.
- Continuing efforts to acquire state and local criminal history records for use by DOD background investigators. Some state and local jurisdictions have statutes banning the provision of criminal history records for any purpose other than law enforcement. In some cases, DOD may never be aware of a security clearance applicant's prior criminal history. DOD is working with both houses of Congress as well as state and local jurisdictions to resolve this problem. **FL**

ENERGY SECRETARY TO ATTEND IEA CONFERENCE

At press time, Department of Energy Secretary John Herrington was slated to head the U.S. delegation to the International Energy Agency (IEA) Ministerial Conference, conducted in Paris, France.

Energy ministers from principal industrialized countries were to attend the July 1985 conference. The importation of petroleum products was expected to be the major topic.

Before leaving for the conference, Secretary Herrington said, "We do not believe a case has been made that import protection is needed at present. I will make it clear to our partners in the IEA—especially Japan—that while we favor free trade, it must be fair trade. We cannot ask U.S. refiners to absorb the impact of product imports diverted to the United States because of import restrictions imposed by other IEA countries."

The secretary said other probable topics included removal of barriers to greater use of coal and nuclear energy. Mr. Herrington said he would stress the importance of continued energy research and development to help assure long-term energy security. He would also encourage IEA member nations to collaborate fully on research and development programs. The Energy Department currently participates in over 140 bilateral and multilateral agreements concerned with energy research. These agreements involve more than 25 countries.

Major IEA objectives include improving the world energy supply and demand structure and coordinating emergency measures to be used during supply disruptions.

The last IEA Ministerial Conference was held in May 1983. FL

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WORTH REPEATIN

"No one can make you feel inferior without your consent."

—Eleanor Roosevelt

"Most quarrels are inevitable at the time; incredible afterwards."

—E. M. Forster,
British novelist

"A battlefield is at once the playroom of all the gods and the dancehall of all the furies."

—Jean Paul Richter,
German writer

"Anxiety is simply part of the condition of being human. If we were not anxious, we would never create anything."

—William Barrett,
British philosopher

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